Katherine Vazquez

Annotated Bibliography

Anderson, J. R., Reder, L.M., & Simon, H.A. (2000, Summer). Applications and misapplications

of cognitive psychology to mathematics education. *Texas Educational Review.*

This article criticizes the constructivist approach to teaching math. Instead, an emphasis on “decontextualized” learning is prescribed. The recommendations are built upon new developments in cognitive psychology.

Bahrick, H. P. & Hall, L. K. (1991). Lifetime maintenance of school mathematics content.

*Journal of Experimental Psychology: General, 120,* 22-33.

This article explored how long mathematical concepts were retained. Specific factors influence what material is consolidated, namely how it is taught and how frequently it is used.

Brousseau, G. (1984). The crucial role of the didactical contract in the analysis and construction

of situations in teaching and learning mathematics. *Theory of Mathematics Education*, 54, 110-119.

This article explains how problem solving alone may simply serve to reinforce pre-existing misconceptions. The didactical contract specifies the role of teacher and student, and how teachers must present situations that help students create new constructions. The inquiry model alone may not be sufficient for teaching math.

Cobb, P. (1990). A constructivist perspective on information-processing theories of

mathematical activity. *International Journal of Educational Research, 14,* 67-92.

The paper focuses on the strong research program and initially considers situations in which it claims to have advanced our understanding of mathematical activity. It is concluded that the program's characterization of students as environmentally driven systems leads to: (a) a treatment of mathematical activity in isolated, narrow, formal domains; (b) a failure to deal with relevance, common sense, and context, and (c) a separation of conceptual thought from sensory-motor action.

Hayes, J. R. (1985). The problems in teaching general skills. *Thinking and learning,* Vol. 2, 29-

37. Hillsdale, NJ: Erlbaum.

This article was relevant in its exploration of general skills like adding, multiplying, and dividing. While they seem intuitive once learned, a solid algorithm is needed to precipitate understanding at the incipient stages of learning.

[Nugent, Patricia M.](http://www.eric.ed.gov/ERICWebPortal/search/simpleSearch.jsp?_pageLabel=ERICSearchResult&_urlType=action&newSearch=true&ERICExtSearch_SearchType_0=au&ERICExtSearch_SearchValue_0=%22Nugent+Patricia+M.%22) (2007). Lattice multiplication in a preservice classroom*.* *Mathematics*

*Teaching in the Middle School*, 13, 110-113.

This article highlights the obliqueness of the lattice method. Traditional algorithms are favored because they are more seamlessly applied. While the author does not eschew new techniques entirely, a foundation in timeless methods are fundamental.